

Role of Genetic Variants in Autophagy Related Gene 7 (Atg7) (rs35807939) in Asthma in North Indian population

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Abstract—Genetic polymorphisms have been found in many autophagy genes which lead to susceptibility to various diseases including asthma. Asthma is an obstructive airway disease which involves in chronic inflammation of the respiratory tract. Autophagy plays an important role in Asthma. Autophagy is an intracellular degradation system that delivers cytoplasmic constituents to the lysosomes which maintains cellular homeostasis. Atg7 an autophagy gene activates Atg12 gene that helps in conjugation of Atg5 and Atg8 gene along with phosphatidylethanolamine that helps in the formation of autophagosome. Our study was focused on Atg7 rs35807939 (A/G) to check disease susceptibility in asthmatic patients among North Indian population. We genotyped 116 healthy individuals and 93 diseased samples for Atg7 rs35807939 using Polymerase chain reaction-Restriction fragment length polymorphism (PCR-RFLP). Genotypic frequencies in healthy individuals were AA=8.62% (n=8), AG=90.51% (n=105), GG=0.86% (n=1) with allele frequencies, A=15.65% and G 84.35%, while in diseased group frequencies were AA=10.75% (n= 10), AG=64.65% (n=75) and GG=6.89% (n=8) with allele frequencies A=15.05% and G=24.95% respectively. On data analysis we did not find any significant association of Atg7 rs35807939 with increased asthma risk (OR= 1.0469, 95%CI= 0.6211-1.7646, P=0.8635). These results indicate that Atg7 rs35807939 (A/G) does not play a substantial role in genetic predisposition towards asthma in the North Indian population.